



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,577	09/19/2002	Bernard H Kear	Kear-2	9692

28581 7590 03/14/2003

DUANE MORRIS LLP
100 COLLEGE ROAD WEST, SUITE 100
PRINCETON, NJ 08540-6604

EXAMINER

BAREFORD, KATHERINE A

ART UNIT	PAPER NUMBER
----------	--------------

1762
DATE MAILED: 03/14/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/049,577

Applicant(s)

KEAR ET AL.

Examiner

Katherine A. Bareford

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,7. 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 16 is objected to because of the following informalities: claim 16, line 7, "from" should apparently be "form". Appropriate correction is required.

Specification

2. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Double Patenting

3. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

4. Applicant is advised that should claims 6-12 and 15 be found allowable, claims 21-28 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Art Unit: 1762

Claims 21-28 as provided by applicant duplicate the language of prior claims 6-12 and 15 (since the ultimate parent of both sets of claims is claim 1). It appears from this duplication and the placement of the claims that applicant intended for claims 21-28 to actually depend from independent claim 16 (with claim 22 depending from claim 16 through parent claim 21). For the purposes of examination, the Examiner has treated claims 21 and 23-28 as depending from claim 16, with claim 22 depending from claim 16 through parent claim 21. If applicant disagrees, and wishes for claims 21-28 to actually depend through claim 1, then the rejection of those claims should be considered to be the same as the rejection of claims 6-12 and 15 as discussed in the 35 USC 103 rejection below.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 16-27 rejected under 35 U.S.C. 102(b) as being anticipated by Connolly et al (US 5120693).

Connolly teaches a method of making a powder. Column 1, lines 5-10. As a ceramic-ceramic powder, it would be capable of being used in a thermal spray apparatus. Column 2, lines 55-65. Micron scale particles of a hard phase material are blended with non-scale particles of a binder phase material. Column 2, lines 55-65, column ¹10, lines 5-15, and column 5, lines 25-

Art Unit: 1762

60. The binder phase material can be a ceramic, silica. See column 2, lines 60-65. The powder mixture is aggregated to bond the different particles together. Column 5, lines 25-50.

Claim 17: in the blending step, the particles are aggregated. Column 5, lines 25-50.

Claim 18: the particles are of different sizes. Column 10, lines 5-20.

Claims 19, 20: the particles are different in composition. Column 10, lines 5-20 (note the difference between the micron particles and the binder particles).

Claims 21, 22, 27: the particles are agglomerated by spray drying before aggregating by heat. Column 5, lines 45-50.

Claim 22: the final particle aggregate size can be 40 microns, for example. Column 5, lines 45-50.

Claim 23: the hard phase material is a ceramic. Column 5, lines 20-40.

Claim 24: the binder phase material can be a ceramic, silica (SiO_2). See column 2, lines 60-65.

Claims 25, 26: the micron scale particles can be 50 to 90 percent of the aggregate by weight, which would be inclusive of, for example, 70 volume percent. Column 10, lines 5-20.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-15 and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Connolly as applied to claims 16-27 above, and further in view of WO 97/18341 (hereinafter '341).

Connolly teaches all the features of these claims except (1) the thermal spraying of the feedstock to form a coating (claims 1, 29), (2) the selective melting during spraying (claim 13), (3) the cooling rate (claim 14) and (4) the particular materials of the particles (claims 15, 28, 30, 31, 33).

However, '341 teaches the thermal spraying of agglomerated particles to form wear resistant coatings. Page 5, lines 10-20. The particles are agglomerated from nanostructured particles. Page 5, lines 10-20. '341 further teaches that when spraying nanoparticle agglomerates, the nanoparticle grains and the binder will all rapidly dissolve, while when spraying larger particles surrounded by a matrix phase, the matrix will melt, but the larger particles will undergo little size change and result in a porous coating. See page 9, lines 10-30 and figures 4A and 4B. '341 teaches that the materials sprayed can be WC/Co agglomerates, for example. See page 8, lines 10-25.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Connolly to use the formed particles in thermal spraying processes as suggested by '341 with an expectation of producing desired ceramic coatings, because Connolly teaches providing agglomerated ceramic powders, and '341 teaches that it is conventionally known to


thermal spray agglomerated powders. It further would have been obvious to use the micron/nano scale particle combination as taught by Connolly when selective melting is desired during spraying, such as to provide a porous coating, because of the selective melting taught to be conventional by '341 when using particles larger than nanoparticle sized. As to the cooling rate, it would have been obvious to control the cooling rate to provide the desired final structure, because of the teaching of Connolly to control the temperature to prevent destroying the crystal structure of the particles during processing (see column 5, lines 25-40). Furthermore, it would have been obvious that the particles with the micron/nano scale combination as taught by Connolly would desirably be made with other ceramic/metal or ceramic/ceramic combinations based on the desired final product, because of the teachings in '341 of the variety of materials that can be agglomerated together to form thermal spraying particles.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (703) 308-0078. The examiner can normally be reached on M-F(7:00-4:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


KATHERINE A. BAREFORD
PRIMARY EXAMINER
GROUP 1100-1700